# DEPARTMENT of ENVIRONMENTAL SERVICES Water Supply & Pollution Control Division - Biology Bureau

#### LAKE TROPHIC DATA

#### MORPHOMETRIC:

Lake: PATENAUDE POND		Lake Area (ha):	27.92
Town: BOSCAWEN		Maximum depth (m):	5.5
County: Merrimack		Mean depth (m):	3.2
River Basin: Merrimack		Volume (m³):	902000
Latitude: 43°17'00"	N	Relative depth:	0.9
Longitude: 71°38'29"	W	Shore configuration:	
Elevation (ft):	530	Areal water load (m/yr)	: 2.34
Shore length (m):	900	Flushing rate (yr <sup>-1</sup> ):	0.70
Watershed area (ha):	152.8	P retention coeff.:	0.79
% watershed ponded:	0.0	Lake type: natura	l w/dam

BIOLOGICAL:	26 January 1995	18 August 1994
DOM. PHYTOPLANKTON (% TOTAL) #1	SYNURA 55%	DINOBRYON 50%
#2	DINOBRYON 20%	CRYPTOMONAS 15%
#3	MALLOMONAS 15%	
PHYTOPLANKTON ABUNDANCE (units/mL)		
CHLOROPHYLL-A (µg/L)		7.08
DOM. ZOOPLANKTON (% TOTAL) #1	LRG PERITR. CILIATE 40%	KERATELLA 32%
#2	KERATELLA 28%	NAUPLIUS LARVA 28%
#3	POLYARTHRA 8%	
ROTIFERS/LITER	198	178
MICROCRUSTACEA/LITER	3	138
ZOOPLANKTON ABUNDANCE (#/L)	354	323
VASCULAR PLANT ABUNDANCE		Common
SECCHI DISK TRANSPARENCY (m)		3.3
BOTTOM DISSOLVED OXYGEN (mg/L)	8.8	5.3
BACTERIA (E. coli, #/100 ml) #1		10
#2		
#3		

# SUMMER THERMAL STRATIFICATION:

### not stratified

Depth of thermocline (m): None Hypolimnion volume  $(m^3)$ : None Anoxic volume  $(m^3)$ : None

CHEMICAL:			PATENAUDE BOSCAWEN	POND	
	26 Janua	ary 1995	18 August 1994		
DEPTH (m)	1.5	3.0	2.0		4.0
pH (units)	6.6	6.6	6.8	······································	6.8
A.N.C. (Alkalinity)	8.5	8.4	6.0		7.6
NITRATE NITROGEN	< 0.10	< 0.10	< 0.05		< 0.05
TOTAL KJELDAHL NITROGEN	0.41	0.50	0.29	-	0.35
TOTAL PHOSPHORUS	0.012	0.013	0.018		0.019
CONDUCTIVITY (µmhos/cm)	32.1	32.8	35.8	# 1 M - 11M	35.8
APPARENT COLOR (cpu)	35	34	33		32
MAGNESIUM			0.74		
CALCIUM			3.4		
SODIUM			1.6		
POTASSIUM			0.50		
CHLORIDE	2	2	2		2
SULFATE	3	3	3		3
TN : TP	34	38	16		18
CALCITE SATURATION INDEX			3.2		

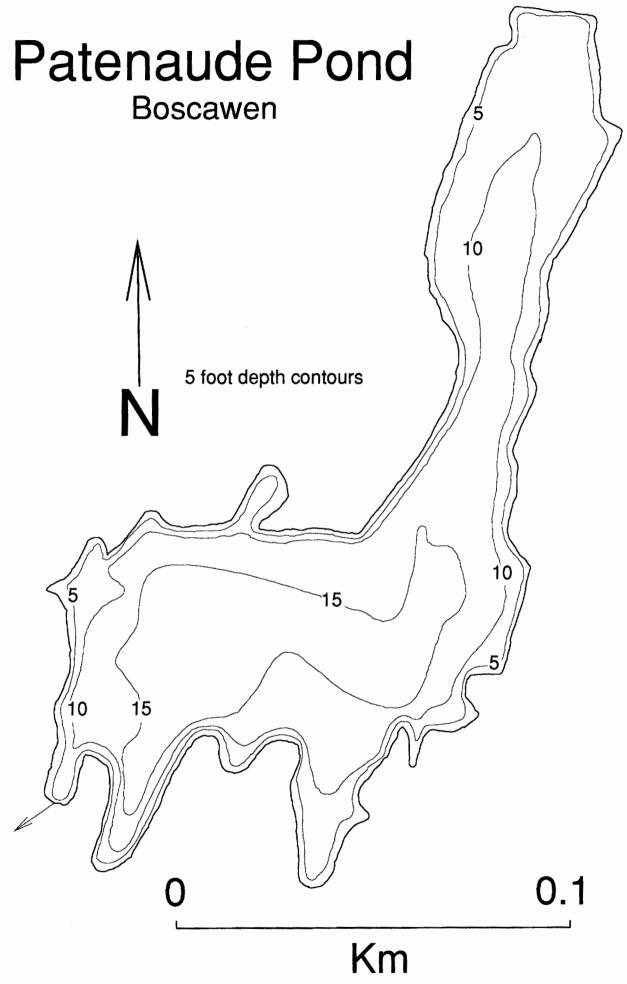
All results in mg/L unless indicated otherwise

TROPHIC CLASSIFICATION: 1994

D.O.	S.D.	PLANT	CHL	TOTAL	CLASS
**	2	3	1	6	Meso.

#### COMMENTS:

- 1. AKA Unnamed Pond #4 and Flag Hole Pond or Flaghole Pond.
- No public access. This undeveloped pond is completely surrounded by undeveloped privately-owned property. In 1988 the property was proposed to support 350 luxury homes and a golf course. In 1994 it was considered for a state park. In addition to the above alternate names, it was listed as Loon Lake and Lake Forest Country Club in the 1988 development plan. Although the land and pond has been open to the public for recreation in the past, at the time of the 1994 sampling access to the land was banned by a locked gate.



# FIELD DATA SHEET

LAKE: PATENAUDE POND DATE: 08/18/94 TOWN: BOSCAWEN

WEATHER: RAINY

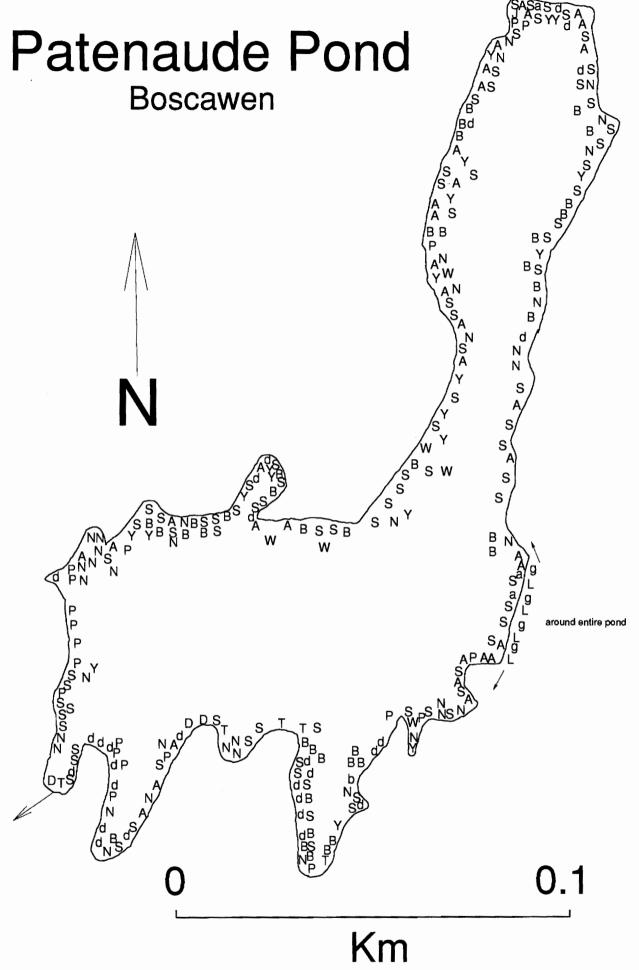
DATE: U8/18/94 WEATHER: RAINY			
DEPTH TEM (M) (°C		OXYGEN SATURATION	
0.1 22.	2 6.9	78 %	
1.0 22.	6.8	77 %	
2.0 22.	2 6.8	77 %	
3.0 22.	0 6.7	76 %	
4.0 22.	0 6.2	71 %	
4.5 22.	0 5.3	60 %	

SECCHI DISK (m): 3.3 **COMMENTS:** 

BOTTOM DEPTH (m): 5.0

TIME:

\*Dissolved oxygen values are in mg/L



111-220

# AQUATIC PLANT SURVEY

LAK	E: PATENAUDE POND	TOWN: BOSCAWEN	DATE: 08/18/94	
Key	PLANT	NAME	ADVINDANCE	
ией	GENERIC	COMMON	ABUNDANCE	
g	Myrica gale	Sweet gale	Scattered	
A	Sagittaria	Arrowhead	Common	
a	Peltandra virginica	Arrow arum	Sparse	
S	Sparganium	Bur reed	Common	
N	Nymphaea	White water lily	Scattered	
В	Brasenia schreberi	Water shield	Sparse	
L	Chamaedaphne calyculata	Leatherleaf	Sparse	
d	Dulichium arundinaceum	Three-way sedge	Scattered	
Y	Nuphar	Yellow water lily	Scattered	
P	Pontederia cordata	Pickerelweed	Sparse	
J	Juncus	Rush	Sparse	
W	Potamogeton	Pondweed	Sparse	
D	Decodon verticillatus	Swamp loosestrife	Sparse	
T	Typha	Cattail	Sparse	
b	Scirpus	Bulrush	Sparse	

# OVERALL ABUNDANCE: Common

# **GENERAL OBSERVATIONS:**

- 1. Plants were common around the entire shoreline but were not a problem to navigation.
- 2. The entire shoreland of the pond supported sweet gale and leatherleaf growth.
- 3. No cottages or development around the pond.